Battle of the Neighbourhoods: Safety, Relocators and Immigrants

Introduction

- Problem: The problem was based in London, that was triggered by observing a sharp uptake in the number of immigrants and relocators in the recent years. Further probing resulted in a trend where certain neighbourhoods seemed to attract a major chunk of these relocators and immigrants. Thus, I thought it would be interesting to analyse London's neighbourhoods based on how safe they are and see if there was a correlation between it and the findings of the survey.

Introduction

- Audience/Stakeholders: If there indeed is a correlation between the survey and our findings, it can serve as a template or point of reference for other people looking to relocate or new immigrants and help them find a neighbourhood to their liking. Also, since living spaces are limited, there might be some safe neighbourhoods that might be full and cannot accommodate any more people. On the other hand, there might be some neighbourhoods that are equally safe but haven't been occupied yet because of their low-key status. In such scenarios, it can help the audience find their second or third best alternatives without too many compromises.
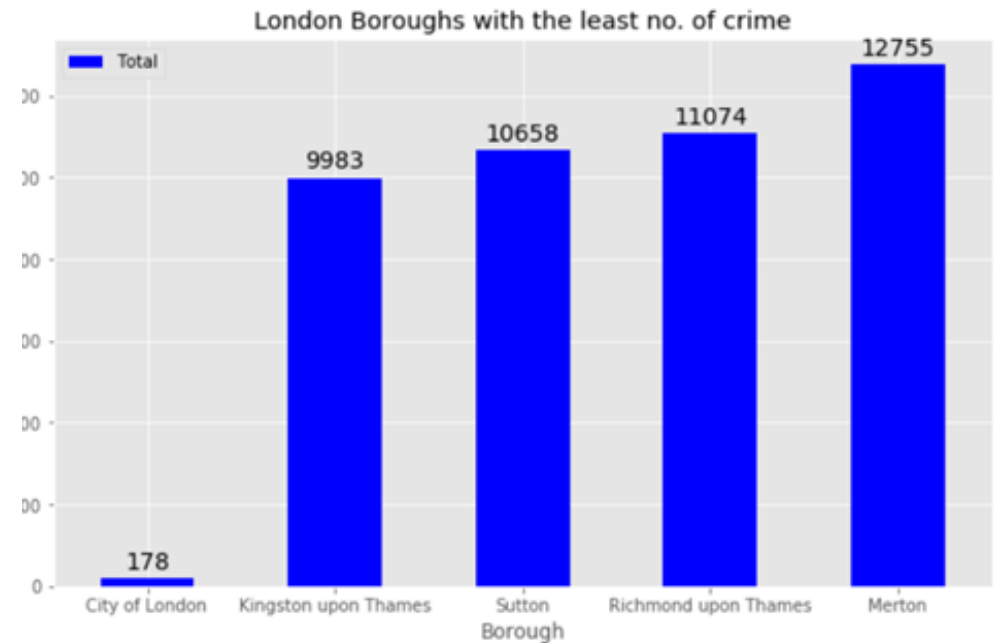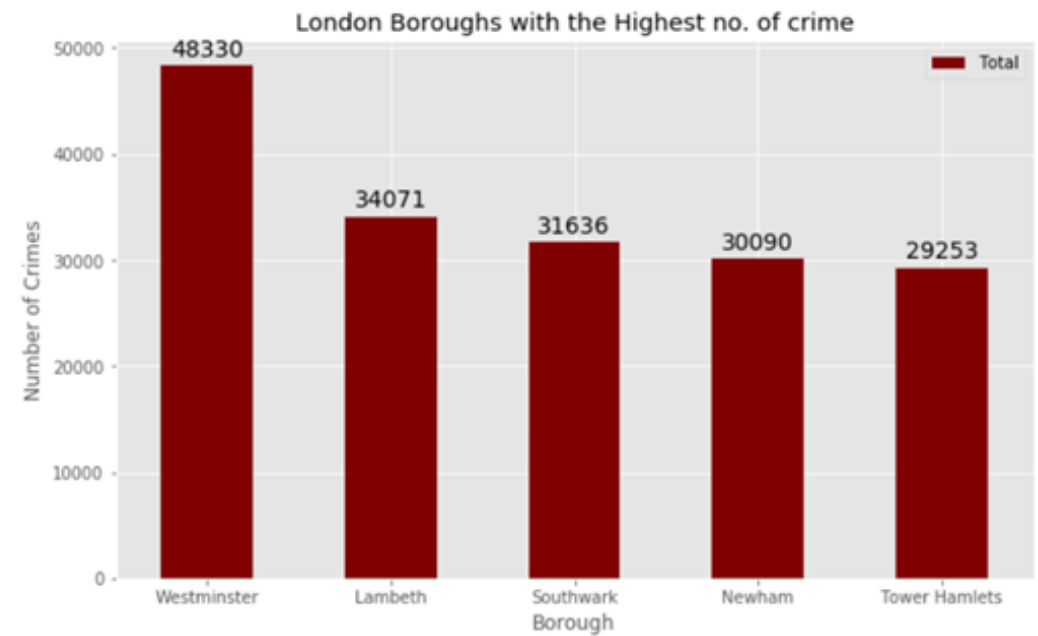
Data

- The data acquired for this project is a combination of data from three sources. The first data source of the project uses a London crime data that shows the crime per Borough in London.

- The second source of data is scraped from a Wikipedia page that contains the list of London Boroughs.

- The third data source is the list of Neighborhoods in the royal Borough of "Kingston upon Thames" as found on a Wikipedia page.

Methodology

- Exploratory Data analysis: to identify the statistical summary of the final dataset and identify neighbourhoods with highest and lowest crime counts.

- Modelling:
  1. Exploring all venues within a 500m radius.
  2. Perform one-hot encoding.
  3. Group venues by neighbourhoods.
  4. Perform K-means clustering.

London Boroughs with the Highest no. of crime

London Boroughs with the least no. of crime

Results

- After performing K-means clustering, we observe that clusters 1 and 4 have 2 neighbourhoods each, while clusters 3 and 5 have a single neighbourhood. Cluster 2 is the cluster that has the highest neighbourhoods and comprises of 7 of the total 13 neighbourhoods.

	Neighborhood	Borough	Latitude	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
1	Canbury	Kingston upon Thames	51.417499	-0.305553	1	Pub	Park	Fish & Chips Shop	Supermarket	Spa	Shop & Service	Gym / Fitness Center	Plaza	Indian Restaurant	Hotel
5	Kingston upon Thames	Kingston upon Thames	51.409627	-0.306262	1	Coffee Shop	Café	Sushi Restaurant	Burger Joint	Pub	Asian Restaurant	Portuguese Restaurant	French Restaurant	German Restaurant	Electronics Store
9	New Malden	Kingston upon Thames	51.405335	-0.263407	1	Gastropub	Bar	Sushi Restaurant	Supermarket	Gym	Chinese Restaurant	Korean Restaurant	Indian Restaurant	Wine Shop	Farmers Market
10	Norbiton	Kingston upon Thames	51.409999	-0.287396	1	Italian Restaurant	Food	Platform	Pub	Indian Restaurant	Breakfast Spot	Japanese Restaurant	Hotel	Hardware Store	Pharmacy
11	Old Malden	Kingston upon Thames	51.382484	-0.259090	1	Train Station	Food	Pub	Child Care Service	Construction & Landscaping	Fried Chicken Joint	French Restaurant	Furniture / Home Store	Fish & Chips Shop	Cosmetics Shop
12	Seething Wells	Kingston upon Thames	51.392642	-0.314366	1	Indian Restaurant	Café	Coffee Shop	Pub	Hotel	Chinese Restaurant	Italian Restaurant	Restaurant	Pet Café	Harbor / Marina
13	Surbiton	Kingston upon Thames	51.393756	-0.303310	1	Coffee Shop	Pub	Grocery Store	Italian Restaurant	Pharmacy	Bakery	Tea Room	Gastropub	Train Station	Farmers Market

Results

- Clusters 1 and 4, each with 2 neighbourhoods.

	Neighborhood	Borough	Latitude	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
6	Kingston Vale	Kingston upon Thames	51.431850	-0.258138	0	Grocery Store	Sandwich Place	Bar	Soccer Field	Deli / Bodega	Department Store	Discount Store	Dry Cleaner	Electronics Store	Farmers Market
14	Tolworth	Kingston upon Thames	51.378876	-0.282860	0	Grocery Store	Pharmacy	Sandwich Place	Train Station	Hotel	Discount Store	Coffee Shop	Café	Bus Stop	Restaurant

	Neighborhood	Borough	Latitude	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Berrylands	Kingston upon Thames	51.393781	-0.284802	3	Bus Stop	Gym / Fitness Center	Park	Wine Shop	Department Store	Discount Store	Dry Cleaner	Electronics Store	Farmers Market	Fast Food Restaurant
8	Motspur Park	Kingston upon Thames	51.390985	-0.248898	3	Bus Stop	Park	Gym	Soccer Field	Restaurant	Wine Shop	Department Store	Discount Store	Dry Cleaner	Electronics Store

Results

- Clusters 3 and 5, each with 1 neighbourhood.

	Neighborhood	Borough	Latitude	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
4	Hook	Kingston upon Thames	51.367898	-0.307145	2	Indian Restaurant	Fish & Chips Shop	Bakery	Supermarket	Department Store	Discount Store	Dry Cleaner	Electronics Store	Farmers Market	Fast Food Restaurant

	Neighborhood	Borough	Latitude	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
7	Malden Rushett	Kingston upon Thames	51.341052	-0.319076	4	Grocery Store	Garden Center	Pub	Restaurant	Electronics Store	Deli / Bodega	Department Store	Discount Store	Dry Cleaner	Farmers Market

Discussion

- The aim of this project was to help potential relocators and new immigrants in finalising a neighbourhood to move into, based on their lifestyles and preferences. For example, if there is someone who is into fitness and prefers a neighbourhood where it's easier to get around without the need of buying a vehicle, Cluster-3 has two neighbourhoods that have gyms and parks as common venues along with bus stops.

Conclusion

- When compared to the survey I found their results to be pretty close to my own findings with Sutton and Kingston upon Thames seeming to attract most of the people moving into these neighbourhoods. Thus, this project can encourage potential movers to go through a full research of the Boroughs and the various neighbourhoods within them. It would also help them get a basic understanding of what each neighbourhood has to offer in terms of the venues around the place and make an informed decision.